

WHAT IS CLAIMED IS:

1. A cardiac rhythm management system, including a sensing circuit for sensing a heart signal, the sensing circuit having a frequency response that is time-dependent during a first time period initiated by one of an evoked or an intrinsic event of the heart signal.
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2. The system of claim 1, in which the frequency response includes a bandwidth that is time-dependent for the first time period, and the first time period is initiated by both evoked and intrinsic events of the heart signal.
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3. The system of claim 2, in which the bandwidth is time-dependent for the first time period, and the first time period is initiated by both evoked and intrinsic QRS complexes of the heart signal.
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4. The system of claim 3, in which the bandwidth decreases to a second bandwidth value, from a first bandwidth value, upon occurrence of the event.
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5. The system of claim 4, in which the bandwidth increases from the second bandwidth value toward the first bandwidth value during the first time period.
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6. The system of claim 5, in which the bandwidth includes a passband.
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7. The system of claim 6, in which an attenuation of a T-wave of the heart signal during the first time period is greater than or equal to the attenuation of the T-wave immediately after expiration of the first time period.
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8. The system of claim 7, in which the first time period is greater than or equal to 250 milliseconds.
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9. The system of claim 8, in which the first time period is approximately between 250 milliseconds and 500 milliseconds.

10. The system of claim 8, in which the first time period is approximately 500 milliseconds.

11. The system of claim 10, in which the sensing circuit includes an 5 automatic gain control (AGC) circuit.

12. The system of claim 1, in which a highpass pole frequency is time-dependent for the first time period, and the first time period is initiated by both evoked and intrinsic events of the heart signal.

10 13. The system of claim 12, in which the first time period is initiated by both evoked and intrinsic QRS complexes, and the highpass pole frequency increases to a second frequency value, from a steady-state first frequency value, in response to detection of a QRS complex.

15 14. The system of claim 13, in which the highpass pole frequency decreases from the second frequency value toward the first frequency value during the first time period.

20 15. The system of claim 1, in which a lowpass pole frequency is time-dependent for the first time period, and the first time period is initiated by both evoked and intrinsic events of the heart signal.

25 16. The system of claim 15, in which the first time period is initiated by both evoked and intrinsic QRS complexes, and the lowpass pole frequency decreases to a second frequency value, from a first frequency value during the first time period.

30 17. The system of claim 16, in which the first time period is initiated by both evoked and intrinsic QRS complexes, and the lowpass pole frequency increases from the second frequency value toward the first frequency value during the first time period.

18. The system of claim 1, in which the sensing circuit includes a gain that is time-dependent during a second time period initiated by one of the evoked or the intrinsic event of the heart signal.

5 19. The system of claim 18, in which the second time period is initiated by both the evoked and the intrinsic event of the heart signal.

20. The system of claim 19, in which the gain decreases to a second gain value, from a first gain value, during the second time period.

10 21. The system of claim 20, in which the gain increases, from the second gain value toward the first gain value during the second time period.

22. A cardiac rhythm management system, including:

15 an electronics unit including:
a therapy circuit;
a sensing circuit for sensing a heart signal of a heart; and
a bandpass filter, included in the sensing circuit, the filter having a frequency response that is time-dependent during a first time period initiated by one of an evoked or an intrinsic event of the heart signal; and
20 a leadwire, coupled to the electronics unit; and
a programmer, remote from and communicatively coupled to the electronics unit, the programmer including a parameter controlling one of: (a) the frequency response of the bandpass filter, and (b) the duration of the first time period.

25 23. The system of claim 22, in which the sensing circuit further includes a gain that decreases from a first gain value to a second gain value during a second time period initiated by one of the evoked or the intrinsic event of the heart signal.

30 24. A method including:
receiving, from a heart, a heart signal that includes an intrinsic event;

filtering the heart signal to attenuate frequencies outside a frequency range having a first frequency range value;
detecting the event; and
adjusting the frequency range from the first frequency range value to a
5 second frequency range value in response to the detection of the event.

25. The method of claim 24, further including adjusting the frequency range from the second frequency range value toward the first frequency range value during a first time period from the event.

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26. The method of claim 25, further including;
providing a stimulation to the heart; and
adjusting the frequency range from the first frequency range value to the second frequency range value in response to the providing the stimulation.

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27. The method of claim 26, further including adjusting the frequency range from the second frequency range value toward the first frequency range value during a first time period from the stimulation.

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28. The method of claim 24, further including:
amplifying the heart signal by a gain; and
reducing the gain from a first gain value to a second gain value in response to the detection of the event.

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29. A method including:
receiving, from a heart, a heart signal that includes an intrinsic event;
providing, to the heart, a stimulation for obtaining an evoked event;
filtering the heart signal to attenuate frequencies outside a frequency range having a first frequency range value;

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detecting the intrinsic event;
narrowing the frequency range from the first frequency range value to a second frequency range value in response to (a) the detection of the intrinsic event, and (b) the providing the stimulation; and

widening the frequency range from the second frequency range value such that the frequency range approaches the first frequency range value after a first time period from (a) the detection of the intrinsic event and (b) the providing the stimulation.

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30. The method of claim 29, in which:

detecting the intrinsic event includes detecting a QRS complex; and

filtering the heart signal includes filtering the heart signal to attenuate frequencies outside the frequency range having the first frequency range value
10 that includes frequency components of the QRS complex.

31. The method of claim 30, in which narrowing the frequency range includes attenuating a T-wave.

15 32. The method of claim 31, in which filtering the heart signal includes bandpass filtering the heart signal.

33. The method of claim 29, further including:

amplifying the heart signal by a gain; and

20 reducing the gain from a first gain value to a second gain value in response to (a) the detection of the intrinsic event and (b) the providing the stimulation.

34. The method of claim 33, further including increasing the gain from the
25 second gain value toward the first gain value during a second time period following one of (a) the detection of the intrinsic event and (b) the providing the stimulation.

35. The method of claim 34, in which the first and second time periods are
30 approximately equal.

36. The method of claim 34, in which the first and second time periods are different.